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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,210	10/31/2003	Jemmy Sutanto Bintoro	GTRC132	2791

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EXAMINER

ROJAS, BERNARD

ART UNIT PAPER NUMBER

2832

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/699,210

Applicant(s)

BINTORO ET AL.

Examiner

Bernard Rojas

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 and 21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albarda et al. [US 5,029,805] in view of Vaitkus et al. [US 2006/0044088].

Albarda et al. disclose a valve arrangement [figure 2] comprising: a single substrate [1] upon which is fabricated a membrane [3] and a membrane activating member [11, 12] wherein the membrane is capable of moving between a first position in which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 2, column 5, lines 28-51].

Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claims 1-7 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11 [US 6,123,316] in view of Albarda et al. [US 5,029,805] and further in view of Vaitkus et al. [US 2006/0044088].

Claims 1-2, 12 and 14, Biegelsen et al., figure 11, discloses an actuator for a microvalve [figure 11] comprising: a substrate assembly [202, 214] upon which is fabricated a membrane [242] and an electromagnetic membrane activating member [216] wherein the membrane is capable of moving between a first position in which flow is inhibited through a flow path and a second position enabling flow through the flow path and the membrane activating mechanism being capable of moving the membrane between the first and second positions [figure 11, column 12, line 56-column 13, line 11].

Biegelsen et al., figure 11, disclose everything claimed except the substrate assembly being formed of a single substrate [1].

Albarda et al. discloses a microvalve formed from a single substrate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a single substrate to form the substrate assembly of Biegelsen et al., figure 11, in order to simplify fabrication.

Biegelsen et al. in view of Albarda et al. fails to teach that there is an integrated circuit on the substrate.

Vaitkus et al. discloses that a mem switch can be integrated on the same substrate with other electrical devices [figure 12, paragraph 66].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the mem switch on the same substrate with other electrical devices in order to reduce the size of the overall apparatus [paragraph 66]

Claim 3, Biegelsen et al., figure 11, discloses the substrate assembly including an orifice [226].

Claims 4-7, Biegelsen et al., figure 11, discloses the use of a convex bistable membrane [figure 11, column 12, line 56-column 13, line 11].

Claims 10-11, the specific energy applied to the actuator and the time to full activation would have been obvious design considerations based on the necessary operating times and working environment.

Claim 13, the specific process used to form the substrate would have been obvious to one of ordinary skill in the art at the time the invention was made based on the specific environment of intended use.

Claims 8-9, 14-17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Biegelsen et al., figure 11, as applied to claim 1 above, and further in view of Biegelsen et al., figure 12 and Roshen et al. [US 5,475,353].

Claim 8, Biegelsen et al., figure 11, disclose everything claimed except the membrane being located between a permanent magnet and the electromagnetic force generator.

Biegelsen et al., figure 12, discloses placing the membrane between a permalloy poled region [215, column 13, lines 12-42] and the electromagnetic actuator.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the poled region of Biegelsen et al., figure 12, in Biegelsen et al., figure 11, for the purpose of controlling response time.

Roshen et al. disclose the use of at least one permanent magnet [28] with electromagnetic microactuators [18] arranged to provide latching without induced force [abstract].

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use permanent magnets for the poled magnetic region of Biegelsen et al., as modified, for the purpose of maintaining bistable operation.

### ***Response to Arguments***

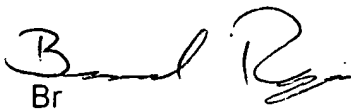
Applicant's arguments with respect to the depending claims have been considered but are moot in view of the new ground(s) of rejection.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Rojas whose telephone number is (571) 272-1998. The examiner can normally be reached on M-F 8-4:00), every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Br

  
ELVIN ENAD  
SUPERVISORY PATENT EXAMINER  
27 Nov 06